I-059

STATE OF CALIFORNIA - Environmental Protection Agency PETE WILSON, *Governor*

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28 July 1997

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1997 CATEGORY III PROJECT PROPOSALS

In response to your request for proposals addressing ecosystem restoration projects and programs, enclosed are ten copies each of four inquiry submittals:

1. Staff Support for Central Valley Regional Water Quality Control Board to Participate in CALFED Process

2. Sediment Quality Criteria for Sacramento-San Joaquin Delta, California

3. San Joaquin River Basin Plan Amendment Project Addressing Salinity and Boron

4. Total Maximum Daily Load Model for Selenium and Boron in the San Joaquin River

If you have any questions regarding these proposals, please contact Dennis Westcot at 255-3000.

Thomas R. Pinkos For
Assistant Executive Officer

Enclosures

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CALFED 1997 Category III Inquiry Submittal

Project Title: Total Maximum Daily Load (TMDL) Model for Selenium and Boron in the San Joaquin River

Applicant: California Regional Water Quality Control Board, Central Valley Region (RWQCB)

Project Description and Primary Biological/Ecological Objectives

The San Joaquin River and tributaries provide habitat for migratory water fowl, migratory fish, and native fish species and contribute 10 to 15% of the freshwater flows to the Delta. Important aquatic habitat areas of the San Joaquin River basin (basin) including Mud Slough (north) and Salt Slough and the San Joaquin River from the Mendota Pool to Vernalis have been reported by the RWQCB to the USEPA as impaired due to constituents in agricultural drainage, including selenium and boron.

Deterioration of water quality as a result of land use practices has been a contributing factor in the decimation of the native fisheries in the basin. Agricultural drainage dominates water quality in the lower San Joaquin River, especially upstream of the Merced River confluence. Selenium, through the Kesterson experience has been demonstrated to be detrimental to aquatic birds. Some researchers have also speculated that selenium may cause reproductive impairment in some sunfishes. Dietary studies with boron have been shown to decrease growth and survival in Mallard ducklings. Also, toxic interactions have been demonstrated between selenium and boron in aquatic birds. Poor water quality impacts out migrating chinook salmon smolts, as the early life stages are especially sensitive to poor water quality.

In order to restore water quality in the basin with respect to selenium and boron and ensure realization of all beneficial uses, the RWQCB has embarked on a regulatory program for agricultural drainage. A basin plan amendment was adopted for the regulation of agricultural subsurface drainage discharges from the Grassland drainers (drainers) (the principal source of selenium and a major source of boron). The plan includes designating beneficial uses, adoption of water quality objectives for selenium, and an implementation plan that includes using a waste discharge permit (WDR) for agricultural drainage discharges. A similar plan is in preparation for boron and salts. Load limits for selenium will be specified in the WDR that will allow for meeting performance water quality goals and eventual compliance with water quality objectives. In order to accomplish this, the RWQCB will need to quantitatively assess all sources of selenium and boron and develop an understanding of the assimilative capacity of the San Joaquin River. This will enable the RWQCB to allocate loads to point and non-point sources in order to achieve water quality objectives and will also be used in the development of load limits for the WDR. A first step has been undertaken in this direction. However, the changing water management of the basin (e.g. CVPIA, CALFED, etc.) has created the need to update the data base.

The attainment of selenium and boron water quality objectives in the basin will have ecological and biological benefits when combined with habitat improvements such as those proposed by the San Joaquin River Management Plan. These habitat and water quality improvements may create an environment more favorable to migratory fish species such as the chinook salmon, sturgeon, and native species such as the splittail. Furthermore, the regulation of selenium and boron may have the incidental benefits of reducing other agricultural drainage constituents such as pesticides, salts, nutrients, temperature, atypical ion ratios, and turbidity. Already, as a result of implementation of the regulatory actions along with the Grassland Bypass Project (GBP), many of the water and drainage districts in the Grassland area have recently implemented policies of no tail water discharges. This has the benefit of reducing the loading of sediments, nutrients, temperature impacts, and pesticides on the basin. The reduced loading of agricultural drainage constituents to the Delta, particularly the southern Delta, with a focus on selenium and boron will benefit water quality in this region and contribute to improvement of the aquatic environment. These improvements in water quality will benefit all aquatic life but most importantly species which are threatened.

Approach/Tasks/Schedule

An assessment of loads and an understanding of the flow regimes in the San Joaquin River is needed to fully implement the basin plan amendment. Some preliminary work has been done to this regard. However, changing management of the hydrologic system brought about by CVPIA and potential pending water rights decision will alter the flow regime in the river. Additionally, recent changes in drainage management along with the GBP allows for

improved accounting of drainage discharges. Thus, the RWQCB proposes to develop a TMDL for selenium and boron. In a TMDL, the maximum load of a constituent that the river can sustain, without exceeding water quality objectives, is apportioned to the various sources after considering a margin of safety.

The RWQCB will first conduct water quality monitoring at strategic locations within the basin. This data will be used along with flow data available from other agencies to compute loads. Monitoring will vary from daily measurements to weekly sample collection. Auto-samplers will be used to collect higher frequency samples. The RWQCB will implement a QA/QC program in the collection of samples and evaluation of data. This phase is expected to last for two years. Simultaneous with this, the RWQCB will evaluate recent flow data for the San Joaquin River and evaluate various flow regimes. In the third year following the assembling of flow and load data, the RWQCB will finalize the TMDL model. During the third year the RWQCB will also conduct model refinements and sensitivity analysis. The TMDL will then be implemented to ensure that water quality objectives will be met by the compliance date specified in the basin plan amendment.

Justification for Project and Funding by CALFED
Under the direction of its board, and in fulfilment of its obligations, the RWQCB has commenced a program for improving water quality in the San Joaquin River. Because the Delta is intertwined with the basin, as the San Joaquin River is a principal component of flow to the Delta and fish and wildlife migrate between the two locations, improvements in water quality in the basin will also be realized in the Delta.

Improvements in water quality are essential components of the CVPIA goals of restoring salmon fisheries and consistent with CALFED mission of restoring ecological health of the Delta and providing good water quality for beneficial uses in the Delta. The proposed project will result in improvements in instream aquatic habitat which is important habitat for salmonids and splittail. This project will also result in benefits to the San Joaquin and East-side Delta tributaries fall-run chinook salmon and to the splittail and green sturgeon, which reside or migrate through portions of the basin and the Delta and have been identified as priority species. Striped bass, which is known to spawn in the lower reaches of the San Joaquin River in years of high flow when agricultural drainage is diluted, and migratory waterfowl are also expected to benefit. The proposed project also addresses the water quality stressor identified in the San Joaquin River Fishery Technical Workshop Report to CALFED.

Budget Costs and Third Party Impacts
The total project budget is $343,000. This includes $86,000 in laboratory costs for two years of water quality monitoring; $100,000 for a student contract for 2.5 students per year to conduct part of the monitoring program; $7,000 in equipment and materials to conduct the monitoring; and $150,000 to support 1.5 PY (0.5 per year) to oversee the monitoring program and to prepare the TMDL model.

This project is likely to have some economic impact to the farming communities in the Central Valley as a result of adjustments that will be made to comply with regulations. The RWQCB will provide mitigation to these impacts through the compliance schedule.

Applicant Qualifications
The RWQCB has conducted water quality monitoring in the San Joaquin River for the past 12 years. The RWQCB has also prepared a first draft Total Maximum Monthly Model and will build upon that model in developing a TMDL.

Monitoring and Data Evaluation
The RWQCB and/or the dischargers (through monitoring and reporting requirements in WDRs) will monitor for compliance with the WDRs and Basin Plan after the plan is completed. The RWQCB will take enforcement action to ensure compliance with the Basin Plan.

Program Support and Compatibility with CALFED Objectives
This proposal is consistent with the goals and objectives of CALFED and CVPIA. Additionally, it is the RWQCB responsibility under Porter-Cologne and the CWA to restore the beneficial uses of impaired waters.

Project Title: ***Sediment Quality Criteria for Sacramento-San Joaquin Delta***

Applicant: Central Valley Regional Water Quality Control Board, Watershed Section, Standards, Policies, and Special Studies Unit, Jerry Bruns, (916) 255-3093

Project Description and Primary Biological/Ecological Objectives:
The goal of the proposed project is to identify where polluted and unpolluted sediment sites are and to provide the State with proposed sediment quality criteria to make management decisions for sediment removal, reuse, and disposal in the Delta. The proposed criteria will allow for the assessment of dry, wetland, and waterside placement of sediments on levees, open water disposal, and unrestricted use.

Approach/Tasks/Schedule:
Preliminary studies have shown that the Delta has several locations that contain contaminated sediments, and other preliminary studies have shown that bulk sediments and sediment elutriates from Delta and upstream locations are toxic. Contaminants of concern include salinity, ammonia, hydrogen sulfide, copper, tin, mercury, zinc, PAHs, dioxins, organophosphate insecticides, and DDT and other chlorinated compounds from agricultural, industrial, chemical, municipal, mining, and recreational operations. However, much of this preliminary information is fragmented among several, unrelated studies. Preliminary chemical surveys suggest that the most contaminated sediments are closely associated with discharge outfalls (i.e., municipal sumps, acid mine drainage, agricultural drains) or sites nearest processing or manufacturing facilities. The removal, reuse and disposal of contaminated sediments represents potential hazards to aquatic life because of sediment resuspension and leaching of interstitial water from terrestrially deposited sediment. Proposed herein is a two-year project to assess the quality and derive proposed criteria for sediment in the Sacramento-San Joaquin Delta. During this two years, the project would 1) identify contaminated sediment areas in the Sacramento-San Joaquin Delta, 2) assess impacts and hazards of sediment removal, disposal, and reuse to fish, wildlife, and water quality in the Sacramento-San Joaquin Delta, and 3) develop Delta-specific proposed sediment quality criteria. The study proposed will test hypotheses that sediments serve as reservoirs for toxic materials which are affecting populations of Delta fish and invertebrates. Information from this study will permit the development of accurate, site-specific models for the effects of various contaminants in sediments on invertebrate and fish populations in the Delta. More importantly, the site-specific models will provide a basis for reviewing the impacts and benefits on benthic invertebrate and fish populations resulting from the removal, reuse, and disposal of sediments. The site-specific models would aid in further developing Delta-specific sediment quality criteria. Delta-specific sediment quality criteria can be used for a variety sediment reuse options.

Because of the emphasis on identification and assessment of the impacts associated with sediment reuse, results of this study can be directly applied to Delta sediments for reuse or disposal alternatives, particularly on recommend remediation measures and monitoring plans. The measures and plans for sediment dredging, removal and reuse can be incorporated into Regional Water Quality Control Board Waste Discharge Permits (WDRs) and ultimately, into a Regional Dredge Management Plan developed specifically for the Delta. To the maximum extent possible, all Delta dredging activities should be assessed for reused opportunities. This requires improved communication and coordination. Several dredge material stockpile sites will be developed through out the Delta to store material from dredging until needed for reuse projects and emergency levee repairs. A GIS database will be used to track various types of data to improve dredged material management. This database will be available to the public for project development activities.

Budget Costs and Third Party Impacts:
Total project cost is $808,700. Agency and cooperating agency matching funds are in the amount of $58,700. Funds requested from CALFED amounts to $750,000. Project costs include: management and administration, QA/QC plan and implementation activities, sample collection, chemical and physical assessments, toxicity and biological testing, and analyses and reporting. No third party impacts are anticipated as a result of this project.

Application Qualifications:
Under the Water Code, the Regional Board is responsible for protecting waters of the State and beneficial uses of water in the Delta. Regional Board staff have been working on various technical and policy committees to address Delta sediment quality, toxic hot spots and dredged sediment reuse opportunities. Regional Boards' "State" laboratory contractors have been leaders in the assessment of sediments on the west coast.

Monitoring and Data Evaluations:
The proposal is comprised of seven elements: (1) A project management document (master contracts) will be developed between the Regional Board and State contract laboratories. A technical advisory committee (TAC) under the CALFED Levee Subcommittee will meet to discuss study design, objectives, implementation, issues for determining sediment quality criteria and monitoring impacts from reuse and disposal. (2) A QA/QC plan will be written and submitted for external technical review. Pilot laboratory studies will be used to evaluate promising sample collection, chemical, toxicological, and bioassessment techniques for later application for Delta sediments. (3) An intensive physical and chemical characterization of the study sites will be conducted. (4) Additional samples will be collected to determine the toxicity of the sediments. (5) Samples of the benthos will be collected. California Rapid Bioassessment (CDFG 1996) methods may be used to characterize the benthic community at each site. (6) The final phase of the study will analyze and summarize the physical, chemical, toxicity, and benthic invertebrate data and assess the potential hazards of sediment removal, reuse, and disposal. Impacts resulting from disposal and reuse of sediment from polluted and reference sites will be modeled. Previously published sediment quality criteria (Long and Morgan 1991) will be evaluated for effectiveness in predicting aquatic toxicity and effects in the benthic communities and their relationship to sediment reuse options and disposal alternatives. Delta-specific sediment quality criteria will be proposed for levee placement, open water disposal, and unrestricted use. (7) Information on the monitoring of the sites and the development of sediment quality criteria will be documented. A list of recommendations for adapting or modifying field or laboratory techniques for local implementation on future sediment dredging projects will also be provided. The information will be incorporated into a draft report and submitted to the TAC and local, State and Federal agencies for review. The results from the final report will serve as a basis for a Regional Dredge Material Management Plan and used in the review and approval of projects by the Regional Board.

Local Support/Coordination with Other Programs/Compatibility with CALFED Objectives:
This study falls within Action 31 of the CALFED Water Quality Actions and includes many of the parameters of concern. It will address many critical issues with regard to the use of dredged sediment for levee maintenance and rehabilitation. This project is also critical for the successful implementation of LTMS objectives in the Delta. Coordination with the Department of Water Resources, Department of Fish and Game, and various Reclamation Districts will be sought via the Levee Subcommittee and the Beneficial Reuse Subcommittee.

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CALFED 1997 Category III Funding
Inquiry Proposal

San Joaquin River Basin Plan Amendment Project Addressing Salinity and Boron

proposed by

California Regional Water Quality Control Board,
Central Valley Region

Project Description and Primary Biological/Ecological Objectives

In June 1997, the California Regional Water Quality Control Board, Central Valley Region (Regional Board) started a thirty month process to amend its Water Quality Control Plan for the Sacramento-San Joaquin River Basins. High concentrations of salt and boron in the Lower San Joaquin River and Southern Delta adversely impact the beneficial use of water, providing the impetus for this amendment. Fish and wildlife are among the beneficial uses that are negatively impacted; directly, due to toxic affects of elevated salt and boron concentrations and indirectly, because of reservoir releases made exclusively to meet water quality objectives, making this water unavailable for in stream uses at other times. The objective of this Basin Plan Amendments to quantify the salinity and boron problem in the lower San Joaquin River Basin, set water quality objectives that are protective of beneficial uses, and establish a program of implementation to meet the water quality objectives.

Approach/Tasks/Schedule

The Basin Plan Amendment process consists of five phases, spanning 30 months. Baseline information will be compiled, analyzed and documented in the first phase. Beneficial uses and water quality objectives will be formulated and proposed in the next two phases. Public comment will be sought throughout the basin planning process on the proposed objectives. Alternative plans of implementation will be formulated and presented for public review in phase four. In the final phase, a surveillance and monitoring plan for the preferred implementation plan will be established and the Sacramento-San Joaquin River Water Quality Control Plan will be amended to incorporate newly established water quality objectives and an implementation plan.

Justification for Project and Funding by CALFED

The State Water Resources Control Board's (SWRCB) 1995 Bay-Delta Water Quality Control Plan directed the RWQCB, CVR to continue their salt load reduction program as initiated by the State Board's 1991 Bay-Delta Salinity Plan and the Regional Board's 1988 Basin Plan Amendment to the San Joaquin Basin. They also reiterated their prior directive to the Regional Board to reduce annual salt loads discharged to the San Joaquin River by at least 10 percent. Establishment of new water quality objectives and an implementation plan to meet existing and newly established water quality objectives is of critical importance to the South Delta because of the potential impact on reservoir releases on New Melones Reservoir on the Stanislaus River. Reduced salt loads in the San Joaquin River will provide more water and greater flexibility in the use of water from New Melones Reservoir.

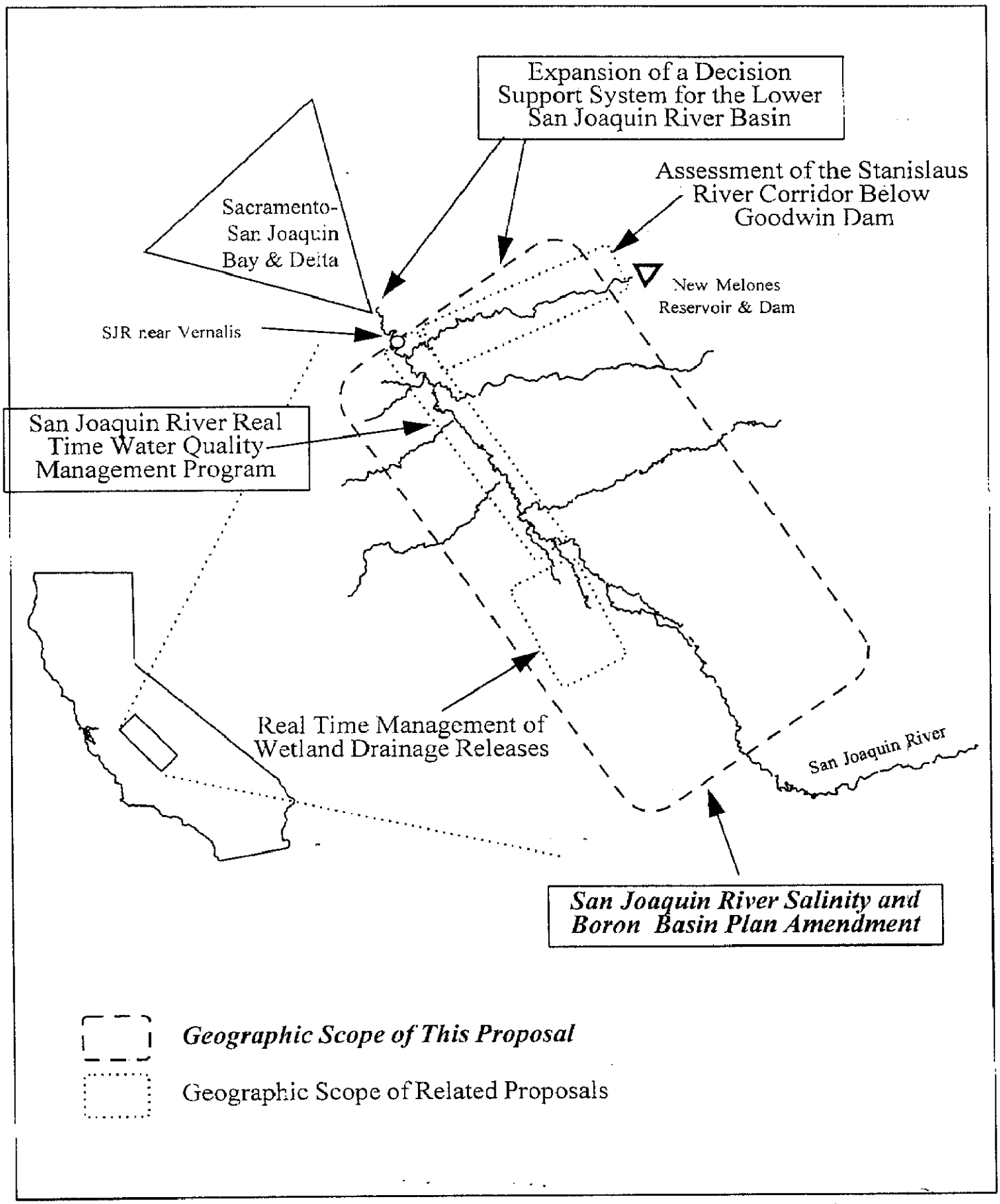
The Regional Board has not secured full funding for the work that needs to be completed for this Project during the next 30 months. The current Work Plan specifies two staff members working full time on this basin planning activity. Without further funding, only a skeleton staff of one staff person per year will be working on this project. An additional $454,000 is needed to complete the project.

Budget Costs
The total cost of the project over the 30 month period is estimated at $759,000. Approximately $305,000 is in the Regional Board's budget. Another $454,000 is needed for a staff member, economic analyses, contract money for evaluation of the toxicity of boron and salinity to fish and other aquatic life, additional monitoring and student assistance.

Applicant Qualifications
The Regional Board recently completed a Basin Plan Amendment for the Control of Agricultural Subsurface Drainage Discharges. The Regional Board has worked closely with state, federal, and local agencies to create an amendment that regulated the discharge of subsurface drainage into the San Joaquin River. A result of this Basin Plan Amendment will be the unprecedented issuance of waste discharge requirements for a non-point, agricultural discharge. Similarly, the Regional Board will work closely with state, federal, and local agencies in the current Basin Plan Amendment process for salinity and boron.

Monitoring and Data Evaluation
The Regional Board has had an extensive water quality monitoring program in the Lower San Joaquin River Basin for over ten years. This historical data was successfully used to regulate subsurface agricultural drainage discharges to the San Joaquin River. This data has been published in a number of reports.

Program Support and Compatibility with CALFED Objectives
Aside from providing benefits to wildlife and fish habitat, the Basin Plan Amendment for salinity and boron will provide the regulatory framework to preserve and restore all beneficial uses of water (agricultural, drinking water, industrial, wildlife habitat, and recreational) in the Lower San Joaquin River and the southern Delta. A diagram of the relationship to other related CALFED project proposals is attached. The proposal would include various staff from the Central Valley Regional Board, California State Water Resources Control Board, and the California Department of Fish and Game. Work will be done in collaboration with the San Joaquin River Management Program, United States Bureau of Reclamation -- Central Valley Operations, United States Geological Survey, United States Fish and Wildlife Service, Lawrence Berkeley National Laboratory and Local San Joaquin River Basin Stakeholders. During the public involvement process for our work plan development, over 100 parties including urban and agricultural water users, environmental groups and farmers expressed interest in the project. Interest is widespread in the Central Valley, Sacramento-San Joaquin River Delta, San Francisco Bay Area, Southern California and other locations.



Attachment Geographic Scope of Related CALFED Project Proposals

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INQUIRY PROPOSAL

Project Title

Staff Support for Central Valley Regional Water Quality Control Board to Participate in CALFED Process

Applicants Name

Central Valley Regional Water Quality Control Board - Jerry Bruns, Chris Foe, Val Connor, Bill Croyle

Project Description

Since the initiation of the CALFED process, Regional Board staff have been involved in providing advice, reviewing documents, assisting CALFED consultants, and participating in various committees. Significant staff time has been devoted to defining pollutants of concern , evaluating potential actions that can be implemented to reduce pollutant impacts on aquatic resources and working with watershed and stakeholder groups to bring them into the CALFED process. This staff time has been redirected from other programs, but the Regional Board cannot continue to do this. This proposal would provide staff resources to the Regional Board to continue to participate in the CALFED process. Over the next few years, staff would assist in reviewing, developing and prioritizing proposals to address water quality problems that impact Bay/Delta ecosystems. Staff would help evaluate alternative actions that are proposed to address water quality problems. Regional Board participation will be essential in implementation of many of the actions. For example, the Regional Board will have a lead role working with local agencies and drainage entities to correct water quality problems associated with drainage in the San Joaquin River watershed. In addition, Basin Plan amendments and, or TMDLs may be needed to implement some of the actions. Staff would help design and implement monitoring and assessment efforts to document present conditions and to evaluate the success of practices that are implemented to resolve water quality problems. Staff would also assist in the evaluation of research needs. Staff would work with existing community based watershed efforts throughout the Central Valley and work with local groups and agencies to assist in formation new watershed efforts that would focus on water quality issues that are important to Delta aquatic resources. Comprehensive programs need to be developed to address mercury, pesticides, temperature, ammonia, dredged material management and unknown toxicity. There are numerous well qualified agencies and parties that are interested in working on these topics and many proposals are being submitted that address some of the issues. We would like to work with other interested parties and CALFED to develop a comprehensive plan that would address the concerns with these pollutants and activities. This would include proposing studies to define the ecological significance of pollutants of concern, evaluating actions to reduce the impacts, and working with watershed groups to develop implementation plans. The Regional Board would take the lead in organizing work teams to work on these priority problems.

Approach/Tasks/Schedule

Work on all these tasks would be continuous. Annual reports would be prepared describing resource expenditures and outputs. Outputs would include evaluating Category III proposals and any other proposals that address water quality issues, participating in development of monitoring programs,

working with watershed groups, and initiating efforts to develop plans for addressing priority water quality problems.

Justification for Project and Funding by CALFED

The Regional Board has not been allocated any resources to participate in the CALFED process. Staff participation over the past year has been significant and staff resources have been redirected from other programs to meet this need This cannot continue. The CALFED process, over the next few years, includes significant efforts to establish the significance of pollutants on the Bay/Delta aquatic ecosystem and to develop watershed-wide solutions to prevent, treat or reduce impacts. This process cannot be effectively implemented without significant Regional Board participation. Providing direct input to the planning and early implementation phases of the CALFED process will help assure program success.

Budget Costs and Third Party Impacts

A detailed budget has not been prepared. However, based on the past years activities and the scope of work anticipated over the next few years, we estimate that 2 pys annually for the next three years would be appropriate. The cost would be $240,000 annually, for a total cost of $720,000. There are no anticipated third party impacts likely to result from this project.

Applicant Qualifications

Under the Water Code, the Regional Board is responsible for designating and protecting beneficial uses of water in the Delta and the watersheds tributary to the Delta. It is the Board's responsibility to assure that pollutants do not adversely impact beneficial uses. In exercising this responsibility, the Board establishes water quality objectives to protect beneficial uses and establishes programs to assure that objectives are met and beneficial uses protected. The Regional Board is also responsible for developing and implementing monitoring programs and special studies to determine whether water quality control efforts are effective in protecting beneficial uses.

Monitoring and Data Evaluation

This proposal does not include monitoring and data collection.

Local Support/Coordination with other Programs/Compatibility with CALFED

The Regional Board plays a major role in the Sacramento River Watershed Program. This effort seeks to coordinate water quality related activities throughout the Sacramento watershed. Also, the Regional Board has formed partnerships with many local watershed programs throughout the Delta watershed. In the San Joaquin River watershed, staff coordinate with Westside RCD, Grassland Basin Water Users, and East Delta Watershed Group. The Regional Board is making sure that these local groups are involved in the CALFED process. One major component of the Regional Board's ongoing watershed effort is to coordinate ongoing and proposed efforts. This will continue in this effort.